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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/665,128	09/22/2003	Michael E. Thomas	H0003933-US	5400
21567	7590	08/17/2005	EXAMINER	
WELLS ST. JOHN P.S. 601 W. FIRST AVENUE, SUITE 1300 SPOKANE, WA 99201			SHEEHAN, JOHN P	
			ART UNIT	PAPER NUMBER
			1742	
DATE MAILED: 08/17/2005				

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/665,128

Applicant(s)

THOMAS ET AL.

Examiner

John P. Sheehan

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 05 July 2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-3, 5-27 and 42-44 is/are pending in the application.
- 4a) Of the above claim(s) 10-12, 16, 18, 19, 21-23, 26 and 27 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-3, 5-9, 13-15, 20, 24, 25 and 42-44 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)* |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date <u>July 5, 2005</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on July 5, 2005 has been entered.

Claim Rejections - 35 USC § 112

1. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

2. Claims 8 and 42 to 44 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter, which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

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I. In claim 8, the newly, recited negative limitation, "wherein the two or more elements of the solid solution are other than a binary solution of Ta and Mo" does not find support in the application as filed.

"Any negative limitation or exclusionary proviso must have basis in the original disclosure. See *Ex parte Grasselli*, 231 USPQ 393 (Bd App. 1983) *aff'd mem.*, 738 F. 2d 453 (Fed. Cir. 1984). The Absence of a positive recitation is not basis for an exclusion. Any claim containing a negative limitation which does not have basis in the original disclosure should be rejected under 35 U.S.C. 112, first paragraph as failing to comply with the written description requirement. Note that a lack of literal basis in the specification for a negative limitation may not be sufficient to establish a *prima facie* case for lack of descriptive support. *Ex parte Parks*, 30 USPQ2d 1234, 1236 (Bd. Pat. App. & Inter. 1993)." see MPEP 2173.05(I).

NOTE: The prior art rejection in view of *Dohjo et al.* (U.S. Patent No. 5,170,244) has been dropped in view of the newly recited limitation, "wherein the two or more elements of the solid solution are other than a binary solution of Ta and Mo". If this limitation is canceled from the claims the prior art rejection in view of *Dohjo et al.* will be reinstated

Applicants' have cited Figure 1 and pages 53-56 (the Examiner assumes that applicants mean paragraphs 53 to 56) as support for this new claim limitation. The Examiner does not agree. Neither Figure 1 nor paragraphs 53 to 56 support this limitation. Figure 1 is a diagram of a prior art piece of apparatus, while the cited paragraphs are silent with respect to the limitation, "wherein the two or more elements of the solid solution are other than a binary solution of Ta and Mo"

II. Regarding claim 42, the claim language, "wherein the component has no single element present at an amount exceeding 95%, by weight " does

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not find support in the specification, as filed, and therefore is considered to be new matter. Applicants have cited paragraphs 13, 14, 39, 64 and 78 in the specification as support for this amendment. The Examiner does not agree in that none of the cited paragraphs in the specification teach the limitation, "no single element present at an amount exceeding 95%, weight" recited in new claim 42. Further, applicants have not explained how the cited paragraphs, which are silent with regard to the proportions recited in claim 42, are considered to support the claimed proportions, see MPEP 2163.05, Changes to the Scope of Claims.

III. In new claim 43, the language, "wherein Ta is present at less than 30 atomic %" and in new claim 44, the language, "wherein Ta is present at greater than 84 atomic %" does not find support in the application as filed. Applicants have cited paragraphs 38, 50, 56, 68, 75-76 and 78 as support for these new claims. The Examiner does not agree. None of the cited paragraphs teach, "wherein Ta is present at less than 30 atomic %" and wherein "wherein Ta is present at greater than 84 atomic %" but rather are silent with respect to the specific proportions recited in claims 43 and 44. Further, applicants have not explained how the cited paragraphs, which are silent with regard to the proportions recited in these new claims, are considered to support the claimed proportions, see MPEP 2163.05, Changes to the Scope of Claims.

Claim Interpretation

3. The claim language, "sputtering target" and "the target being configured for mounting within a physical vapor deposition apparatus" has been added to the claims (for example see claim 1). Although not all forms of an alloy will be the optimum sputtering target, any form of an alloy can be a sputtering target and can be mounted in a physical vapor deposition apparatus. Thus, it is the Examiner's position that this language does not limit the form of the claimed alloy.

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claims 1 to 3, 5 to 7, 9, 13, 14, 17, 20, 24 and 25 are rejected under 35 U.S.C. 102(b) as being anticipated by Schussler et al. (Schussler, US Patent No. 3,592,639).

Schussler teaches a single phase tantalum based alloy containing tungsten (Abstract of the Disclosure and column 1, line 71). Schussler teaches a specific example alloy containing, in addition to tantalum and tungsten, columbium (niobium), hydrogen, molybdenum, cobalt, iron, vanadium, nickel and chromium (column 3, lines 40 to 60). The tungsten, columbium (niobium), hydrogen, molybdenum, cobalt, iron,

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vanadium, nickel and chromium of Schussler's example alloy are all encompassed by the applicants' claims language,

two or more elements in elemental form;
each of the two or more elements being
selected from groups 1, 5, 6, 8, 9 and 10
of the periodic table.

In view of this discussion of Schussler and the discussion under the heading "Claim Interpretation", applicants' claimed invention does not distinguish over Schussler's disclosed compositions.

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

4. Claims 1 to 3, 5 to 8, 20 and 42 are rejected under 35 U.S.C. 102(e) as being anticipated by Perry et al. (Perry, US Patent Publication No. 2004/0025986, cited in the IDS submitted September 7, 2004).

Perry teaches single-phase precious metal sputtering targets having compositions that are encompassed by the instant claims (Abstract and page 2, paragraphs 0014 and 0015, and the examples). Applicants' claimed invention does not distinguish over Perry's disclosure.

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5. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 1 to 3, 5 to 8, 13-15, 24, 25 and 42-44 are rejected under 35

U.S.C. 102(e) as being anticipated by Kumar et al. (Kumar, US Patent No. 6,521,173, cited in the IDS submitted January 12, 2004).

Kumar teaches sputtering targets (column 3, lines 6 to 26) having compositions that are encompassed by the instant claims (column 2, lines 19 to 26, column 4, lines 13 to 16). Kumar also teaches that the disclosed sputtering targets have a uniformity of texture, i.e. the targets are single phase as recited in applicants' claims (column 13, lines 18 to 20). Applicants' claimed invention does not distinguish over Perry's disclosure.

Claim Rejections - 35 USC § 102/103

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

7. Claims 43 and 44 are rejected under 35 U.S.C. 102(b) as being anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Dohjo et al. (Dohjo, US Patent No. 5,170,244).

Dohjo teaches specific examples to Ta-Mo sputtered films, having compositions that are encompassed by the instant claims, including examples wherein the Ta content is less than 30 atomic % as recited in applicants' claim 43 and examples wherein the Ta content is greater than 84 atomic % as recited in applicants' claim 44 (columns 5 and 6, the Table). Regarding the claim limitation that the deposited film is a single phase solid solution it is the Examiner's position that in view of Dohjo's discussion at column 6, lines 59 to 68 regarding an Mo-Ta film having a tetragonal type structure or a body-centered cubic type structure and the X-ray diffractions having a essentially a single peak as shown in Figures 9A and 9B Dohjo's film appears to be single phase as recited in applicants' claims 43 and 44. Regarding the limitation that the claimed alloy is a solid solution, it is the Examiner's position that, the alloy composition taught by Schussler is single phase as is the applicants' claimed invention and the composition of Schussler's alloy is encompassed by the composition recited in applicants' claims. In view of this, one would expect that Schussler's alloy would possess all the same properties as applicants' claimed alloy, including the property of being a solid solution, In re Best, 195 USPQ, 430 and MPEP 2112.01.

"Where the claimed and prior art products are identical or substantially identical in structure or composition, or are produced by identical or substantially identical processes, a prima facie case of either anticipation or obviousness has been established, In re Best, 195 USPQ 430, 433 (CCPA 1977). 'When the PTO shows a sound basis for believing that the products of the applicant and the prior art are the same,

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the applicant has the burden of showing that they are not.' In re Spada, 15 USPQ2d 655, 1658 (Fed. Cir. 1990). Therefore, the prima facie case can be rebutted by evidence showing that the prior art products do not necessarily possess the characteristics of the claimed product. In re Best, 195 USPQ 430, 433 (CCPA 1977)." see MPEP 2112.01.

This position is further supported by the fact that it is known in the art as demonstrated by the ASM Handbook (page 375, the Ta-W phase diagram) and Hansen (page 1226, under the heading "Ta-W Tantalum-Wolfram", lines 1 to 3) that tantalum alloys containing tungsten form solid solutions in all proportions. Thus, the limitation regarding the target being in the form of a solid solution is inherent, (the ASM Handbook and Hansen were cited in the Office action mailed April 7, 2005).

Response to Arguments

8. Applicant's arguments filed July 5, 2005 have been fully considered but they are not persuasive for the reasons set forth above in the rewritten statement of the rejections.

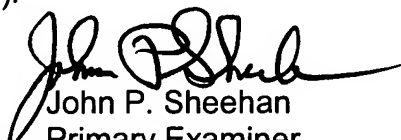
Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to John P. Sheehan whose telephone number is (571) 272-1249. The examiner can normally be reached on T-F (6:45-4:30) Second Monday Off.

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Roy King can be reached on (571) 272-1244. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).


John P. Sheehan
Primary Examiner
Art Unit 1742

jps